



Personal  
Communications  
Industry  
Association

ORIGINAL

DOCKET FILE COPY ORIGINAL

January 9, 1995

Mr. William Caton  
Secretary  
Federal Communications Commission  
1919 M Street, N.W.  
Washington, D.C. 20554

RECEIVED

JAN 9 1995

Re: CC Docket No. 94-102

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF SECRETARY

Dear Mr. Caton:

Last October, representatives of the wireless industry and the public safety communications community participated in a Joint Experts Meeting (JEM) regarding wireless support of 9-1-1 and enhanced 9-1-1 services. The JEM was sponsored by the Association of Public Safety Communications Officials International, Inc., the National Association of State Nine-One-One Administrators, the National Emergency Number Association, the Personal Communications Industry Association, the Telecommunications Industry Association and Committee T1 Telecommunications. There were over 100 participants in the JEM representing communications, public safety, satellite, enhanced specialized mobile radio, and intelligent vehicle highway systems industries, as well as vendors to these industries.

The attached Wireless Support of 9-1-1 and Enhanced 9-1-1 Services report reflects the many hours of technical discussions and negotiations by dedicated professionals interested in deploying wireless enhanced 9-1-1 services. On behalf of these individuals it is our pleasure to transmit to you the final version of the report to be included in the record.

Sincerely,

*Mary Boyd* /mm

Mary A. Boyd  
JEM Co-Chair  
Executive Director  
Texas Emergency Communications Commission  
1101 Capital of Texas Highway, South  
Austin, TX 78749  
512/305-6911  
Fax: 512/305-6937

*Gary Jones* /mm

Gary Jones  
JEM Co-Chair  
Director of Standards Policy  
Omnipoint Corporation  
1365 Garden of the Gods Rd.  
Colorado Springs, CO 80907  
719/548-1200, Ext. 125  
Fax: 214/713-5397

No. of Copies rec'd Off  
List A B C D E

94.11.02

RECEIVED

JAN 9 1995

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF SECRETARY

# ***Wireless Support of 9-1-1 and Enhanced 9-1-1 Emergency Services***

*Joint Experts Meeting  
Report*

# 1. Executive Summary

---

In July, 1994, the wireless telecommunications community and the emergency service/public safety community identified the need to jointly examine the issues related to wireless support of 9-1-1. The Federal Communications Commission was expected to initiate a proceeding on this issue, and the two communities determined that a Joint Experts Meeting (JEM) should be convened in October. Representatives of communications, public safety, satellite, Enhanced Specialized Mobile Radio (ESMR) and Intelligent Vehicle Highway System (IVHS) industries, as well as vendors to these industries, were invited to participate.

The JEM was sponsored by the Association of Public Safety Communications Officials International, Inc. (APCO), National Association of State Nine-One-One Administrators (NASNA), National Emergency Number Association (NENA), Personal Communications Industry Association (PCIA), Telecommunications Industry Association (TIA) and T1P1. The JEM was hosted by APCO, NENA, Nokia Mobile Phones, Omnipoint Corporation, Oregon Department of State Police and SCC Corporation.

The JEM was called to order on October 11, 1994, in Chantilly, VA by Co-Chairs Mary Boyd (Executive Director, Texas Emergency Communications Commission) and Gary Jones (Director of Standards Policy, Omnipoint Corp.). Representatives from public safety organizations, U.S. standards organizations, U.S. trade industry associations, North American service providers, and manufacturers attended and participated in the deliberations. The FCC was unable to participate due to their "Sunshine" rules regarding the Notice of Proposed Rule Making on wireless access to 9-1-1 Emergency Services.

For the Commercial Mobile Radio Service (CMRS) industry as a whole, this document adapts and expands the TIA TR45 Emergency Services JEM Report (contribution WJEM(911)/94.10.11-008) approved on August 24, 1994. Additions and modifications were made relating to the particular requirements of newer wireless services and special wireless services, such as mobile satellite.

The outcome of the JEM was:

- A prioritized list of Public Safety Answering Point (PSAP) Service Requirements
- The mapping of the emergency services telecommunicator features to four evolutionary paths:

Path	Wireless System	Mobile Stations	9-1-1 System
A	Existing	Existing	Existing
B	Expanded	Existing	Expanded
C	Enhanced	Existing	Enhanced
D	Enhanced	Expanded or Enhanced	Enhanced

*Existing:* No change to existing equipment or protocols

*Expanded:* Minor changes to existing equipment or protocols

*Enhanced:* Major changes to existing equipment or protocols, or altogether new equipment

- The information elements needed between the wireless system and the emergency service system to support the PSAP service requirements.
- The identification of radio location techniques that may provide more accurate mobile station location information.

There are a variety of location technologies available and proposed that have differing capabilities. There are a number of wireless implementations using differing air interface technologies. To mandate a single solution would be extremely difficult and premature. However, it should be recognized that multiple implementations may not provide a consistent level of location accuracy among and across systems. Over time, the migration of mobile stations may result in the inability to provide user location information to a desired degree of accuracy.

The views expressed in this report represent an evolutionary path. The public safety and wireless service provider communities each have a unique set of challenges that includes economic, operational and technological feasibility. These factors should be considered in the use of this report.

In addition, other industry and public safety associations should consider establishing requirements for the interface between the wireline and wireless services, and the Public Safety Answering Points.

## 2. Scope and Purpose

---

The scope of the JEM was wireless support of Basic 9-1-1 and Enhanced 9-1-1 Emergency Services.

The purpose of the JEM was to:

- Define PSAP service requirements
- Identify current and developing technologies that can support PSAP service requirements
- Identify future technological solutions required to support unaddressed PSAP service requirements
- Identify impacts of PSAP service requirements including implementation considerations for:
  - wireless service providers
  - wireline network operators
  - public safety systems
- Identify need for standards (where appropriate)

### 3. JEM Methodology

---

A set of reference documents was selected to guide the discussions, and 40 contributions were received, to be addressed in the specific sessions covering the objectives.

Tutorials were presented on wireless networks, wireline networks and emergency service telecommunications. The tutorials established a common frame of reference and terminology for the JEM participants.

The JEM proposed to follow five technical tracks for discussion of the issues and contributions. The five technical tracks were:

- Position Location Capability
- Data
- System Engineering
- Callback Capability
- Support for Specialized Services

During the opening plenary, the participants decided that the work of the Data, System Engineering, Callback Capability and Specialized Services Support could be consolidated into one track entitled Data.

## 4. Introduction

---

### 4.1 Background

---

The Basic 9-1-1 (B9-1-1) and Enhanced 9-1-1 (E9-1-1) systems in existence today have been designed to provide rapid response to calls for emergency service from wireline subscribers. B9-1-1 emergency service systems establish routing of calls to a PSAP. E9-1-1 provides added capabilities, including selective routing of a call to the appropriate PSAP for rapid response to emergency calls and the display of calling number, address, and in most cases, the name of the subscriber at the calling number. However, these emergency service systems do not address the unique characteristics of wireless communications.

The mobile nature of wireless communications and the unique characteristics of radio frequency (RF) propagation may require modification of existing emergency service systems and the development of special capabilities in wireless systems.

Emergency service access (E9-1-1) by a wireless caller requires mobile station (MS) location information be used to assist in routing the call to the appropriate PSAP. Location information may be used to dispatch an emergency vehicle to the incident site.

### 4.2 Perspective

---

The views expressed in this report represent an evolutionary path. The public safety and wireless service provider communities each have a unique set of challenges that includes technical, operational and economic feasibility. These factors should be considered in the use of this report.

## 5. PSAP Service Requirements

### 5.1 PSAP Service Requirement Descriptions

The following is a list of PSAP service requirements in priority order. A high level description is provided for each service requirement, including information fields that may or may not be used for specific system configurations.

#### 1. Emergency Services Reached by Dialing 9-1-1

- A mobile station user dialing 9-1-1 shall access emergency services.
- A mobile station may have an emergency service or 9-1-1 call button to speed dial the 9-1-1 sequence.
- A mobile station user may dial 9-1-1-SEND if required by the particular subscriber unit.
- Dialing 9-1-1 shall bypass all call origination restriction features (e.g., PIN access, PIN intercept).
- Mobile stations should allow 9-1-1 to be dialed at all times (even when locked or when served by a restricted system).
- \*9-1-1 may be treated as a 9-1-1 call. (This non-preferred sequence should not be publicized.)

#### 2. 9-1-1 Call Precedence

- An originating 9-1-1 call should be given priority over other non-emergency call originations.
- The alternate Priority Access and Channel Assignment (Alt. PACA) procedures described in TIA TR45 PN-2977 (the proposed IS-53-A Cellular Feature Descriptions for Public 800 MHz) provide an interim solution for the precedence of existing 800 MHz Cellular PCS 9-1-1 calls:
  - Three levels of priority are established, designated A, B, and C.
  - A number of channels are reserved for A (highest), B and C (lowest) priority calls.
  - A caller with "A" priority has access to the A, B, C channels.
  - A caller with "B" priority has access to the B, C channels.



- A caller with "C" priority has access to the C channels.
- A 9-1-1 call may be treated as a priority call subject to local operating practices or regulations.
- Priority queuing could be considered as another mechanism to provide access for an emergency call. If a traffic channel is not available when the mobile station user attempts to originate the 9-1-1 call, the call would be "queued" and the mobile station would be paged and alerted when a radio channel becomes available.
- Other air interface standards should support the Priority Access and Channel Assignment (PACA) feature defined in either TIA TR45 PN-2977 (the proposed *IS-53-A* Wireless Cellular Feature Descriptions), TIA TR46 *IS-104* (Personal Communications Service Descriptions for 1800 MHz), or equivalent.

### 3. Identify Caller's Initial Location

---

- Obtaining location information shall not require overt action on the part of the caller.
- The method of sending location information from the wireless system to the emergency service system shall be standardized. The location information describing the mobile station's position should have a data stream format that will allow the following data elements to be presented:
  - Latitude
  - Longitude
  - Altitude
  - Resolution
  - Accuracy
  - Geometric Description
  - Confidence Level
  - Motion Information
  - Time Stamp
  - Source of caller's geographic location
    - a. Mobile Station (MS)
    - b. Base Station Controller (BSC)
    - c. Mobile Switching Center (MSC)
    - d. Home Location Register (HLR)
    - e. Selective Router (SR)
- Location information should be obtainable for all 9-1-1 callers.

- Accuracy Goals:<sup>1</sup>
  - Near term goal: within 400 feet (longitude, latitude, resolution)
  - Long term goal: within 40 feet (longitude, latitude, altitude, resolution)

#### **4. Subscriber Identity Information**

---

- Mobile Identification Number–Electronic Serial Number (MIN-ESN)
- International Mobile Station Identifier (IMSI)
- Billing number
- Subscriber name
- Subscriber billing address
- Subscriber home telephone number
- Subscriber priority indication
- Priority Access and Channel Assignment (PACA) level (A, B, or C)
- Preferred Language
- Personally provided medical information
- Home wireless service provider information

#### **5. 9-1-1 Call Related Information**

---

- Serving wireless system ID
- Mobile Identification Number (MIN), International Mobile Station Identifier (IMSI)
- Electronic Serial Number (ESN)
- Callback Number, one or more of the following:
  - Emergency service access port number
  - Temporary Local Directory Number (TLDN) associated with this 9-1-1 call
  - Mobile directory number
  - Indication of non-callable mobile station (originate only)

---

<sup>1</sup> It is important to note that these are goals, not requirements. The realization of these goals is contingent on technical and economic feasibility.

---

**6. Ability to Request Updated Caller Location Information**

---

- PSAP may query the wireless system to obtain updated caller location information.
- PSAP may request the wireless system to report updated location information periodically.

---

**7. Ability to Communicate with and Determine the Type of Emergency Service Needed**

---

- The MSC shall provide a standard voice connection (or data connection for a data terminal) to the PSAP.
- Air interface encryption may be used; however, it must be removed before delivery of the call to the PSAP.

---

**8. Ability to Receive 9-1-1 Calls at the Appropriate PSAP**

---

- The 9-1-1 caller's location information shall determine the initial routing to the appropriate jurisdictional PSAP, based on the best location information available, within the time required for proper selective routing.

---

**9. Originate 9-1-1 Calls from the Current Serving System**

---

- If the mobile station user is engaged in a call, is capable of three-way (or conference) calling, and initiates a 9-1-1 call during the call, the Serving MSC shall process the 9-1-1 call.
- The Serving MSC shall route the 9-1-1 call toward the appropriate PSAP, based on the caller's location at call initiation.
- The caller may use flash to add a held party to a three-way (or conference) call.

---

**10. Ability to Detect and Communicate with Text Telephone Device (TTY) callers**

---

- TTY callers should have access to 9-1-1 emergency service via the wireless system.

---

**11. Ability to Hold the Line After the Caller has Disconnected or the Call has Dropped, Under Direction of the Controlling PSAP**

---

- The mobile station is precluded from receiving other calls.
- The mobile station is precluded from originating another call.
- Any origination attempt is connected to the Telecommunicator.
- The caller may automatically be called back.

**12. Ability to Call Back If the Call is Disconnected or the Call is Ended Prior to Completion of the Event**

---

- Local callback number
- Emergency service access port

**13. Ability to Transfer the Caller to the Appropriate PSAP**

---

- While communicating with the caller, bridge on another PSAP; transfer the call and call control upon disconnect by the controlling PSAP.
- Consider a non-dialable national office code for PSAPs. (This could be 911 to allow directory numbers in the form: NPA-911-XXXX) This office code could be used to route inter-LATA (Local Access and Transport Area) calls through an Access Tandem to a specific PSAP. It could also be used to identify emergency service callback calls to bypass subscriber features (such as, call forward, do not disturb, etc.).

**14. Ability to Provide ALI Information and Information Captured During the Call to Another PSAP**

---

- When a call is transferred, all information regarding the call (including subscriber information, location information, service provider information, and information captured during a call) should be transferred with the call.

**15. Ability of the PSAP to Force Disconnect for MS-to-PSAP Calls**

---

- When a PSAP disconnects, the mobile station (MS) is disconnected, regardless of its switchhook state.

**16. Area Cell Congestion Control**

---

- The wireless system should be able to "throttle" 9-1-1 calls from the same area, since the calls may be related to a single incident. Throttling is a concept for constricting flow by discarding or delaying selected call attempts.

**17. System Congestion Control**

---

- The MSC should be able to "throttle" 9-1-1 calls at the request of the PSAP.
- The PSAP should be able to "broadcast" messages regarding conditions (perhaps using a broadcast short message service) to selected areas.

## 18. Authorization Override

- Serving wireless system should be able to block or allow 9-1-1 calls from:
  - Unauthorized mobile stations
  - Specific mobile stations
  - Specific locations
- New mobile stations that use identity modules may be able to initiate 9-1-1 calls if the identity module is not present.
- Mobile stations should allow the caller to initiate a 9-1-1 call when locked.
- Mobile stations should allow the caller to initiate a 9-1-1 call when the mobile station's programming prevents it from accessing the system for other wireless services.

## 5.2 Impact of PSAP Service Requirement Priority

The extent of changes required to implement particular service requirements were analyzed to determine if the changes required are:

- Existing:* No change to existing equipment or protocols
- Expanded:* Minor changes to existing equipment or protocols
- Enhanced:* Major changes to existing equipment or protocols, or altogether new equipment

The changes were analyzed for the wireless system infrastructure (the Home Location Register, the Visitor Location Register, the MSC, and other required functions), mobile stations, and the 9-1-1 system infrastructure (selective routers, PSAPs, wireline networks, etc.).

The changes and the degree of the changes were applied to select a particular evolutionary path, as shown in the following table:

Path	Wireless System	Mobile Stations	9-1-1 System
A	Existing	Existing	Existing
B	Expanded	Existing	Expanded
C	Enhanced	Existing	Enhanced
D	Enhanced	Expanded or Enhanced	Enhanced

The following table summarizes the PSAP Service Requirements and maps them onto four evolutionary paths (labeled A through D) based on the technology available for implementation. Where possible the usable technology is indicated (with possible limitations).

EMERGENCY SERVICES JEM					
PSAP SERVICE REQUIREMENT PRIORITY					
NUM	DESCRIPTION	P A T H	P A T H	P A T H	P A T H
		A	B	C	D
		Existing	Expanded	Enhanced	Enhanced
		Existing	Existing	Existing	Enhanced
		Existing	Expanded	Enhanced	Enhanced
1	Emergency Services Reached by Dialing 9-1-1	Now			
2	9-1-1 Call Precedence		ALL PACA		PACA (or equivalent)
3	Identify Caller's Initial Location* - Location technology should not require overt action on the part of the user.  - Location information shall be available for all calls - Near Term Goal:** Within 400 ft. (Lat., Long., Resolution) - Long Term Goal:** Within 40 ft. (Lat., Long., Alt., Resolution) * Method of sending location information should be "universal." ** It is important to note, this is a goal and not a requirement; realization of the goal is contingent on economic and technical feasibility.	Cell/Sector (precludes callback)  Now			
				Network based	MS based
				Network based	MS based
4	Subscriber Identity Information - Source (home) - Name, Address, MIN, IMSI		Pseudo-ANI	Information Transfer	
5	Terminal Identity Information - ESN, type		Pseudo-ANI	Information Transfer	
6	Ability to Request Location Update Information - single report - automatically reported by the serving system at periodic intervals - Same resolution as initial request			Information Transfer	
7	Ability to Communicate with and Determine the Type of Emergency Service Needed	Voice			Data
8	Receive 9-1-1 Calls at the Appropriate PSAP	Cell/Sector resolution		Latitude & Longitude	
9	Originate 9-1-1 Call from the Current Serving System (mobile is given flash privilege to add held party to call)		Modify MSC		
10	Ability to Detect and Communicate with TTY and Data Callers	TTY			Data

EMERGENCY SERVICES JEM					
PSAP SERVICE REQUIREMENT PRIORITY					
NUM	DESCRIPTION	PATH A	PATH B	PATH C	PATH D
	Wireless System:	Existing	Expanded	Enhanced	Enhanced
	Mobile Station:	Existing	Existing	Existing	Enhanced
	E9-1-1 System:	Existing	Expanded	Enhanced	Enhanced
11	Ability to Hold Line after the Caller Disconnected or the Call was Dropped, Under Direction of the PSAP <ul style="list-style-type: none"> <li>- precluded from receiving other calls</li> <li>- precluded from originating other calls</li> <li>- call originations are connected to the call taker</li> <li>- automatically call back the caller</li> </ul>		Modify MSC		
12	Suspend Flash Privileges for New Service Requests		Modify MSC		
13	Ability to Call Back if the Call is Disconnected, or Ended Prior to Finalization of the Event <ul style="list-style-type: none"> <li>- Local Callback Number</li> <li>- Roamer Port Number</li> </ul>	Pseudo-ANI (precludes location)	Pseudo-ANI	Information Transfer	
			Pseudo-ANI	Information Transfer	
14	Ability to Transfer Caller to the Appropriate PSAP <ul style="list-style-type: none"> <li>• While communicating with the caller, bridge on another PSAP, transfer the call and call control upon disconnect by the controlling PSAP</li> </ul>	PSAP switchhook flash controlled		PSAP ISUP / TCAP control	
15	Ability to Provide ALI and Information Captured During the Call to Another PSAP			Information Transfer	
16	Ability of PSAP to Force Disconnect for Mobile Station to PSAP Calls	Now			
17	Area Congestion Control <ul style="list-style-type: none"> <li>- MSC "throttles" 9-1-1 calls from same area</li> </ul>		Modify MSC		
18	System Congestion Control <ul style="list-style-type: none"> <li>- PSAP can request MSC to "throttle" incoming calls</li> <li>- PSAP can request MSC to "broadcast" messages regarding conditions to selected areas</li> </ul>			Information Transfer	Short Message Service (or equivalent)
19	Authorization Override <ul style="list-style-type: none"> <li>- Serving MSC may block or allow 9-1-1 calls from: <ul style="list-style-type: none"> <li>&gt; Unauthorized mobile stations</li> <li>&gt; Specific mobile stations</li> <li>&gt; Specific locations</li> </ul> </li> <li>- New mobile stations that utilize Identity Modules should be able to initiate 9-1-1 calls if the identity module is not present</li> <li>- Locked terminals</li> <li>- Mobile station access restrictions</li> </ul>		Modify MSC		Modify MSC

## 6. Information Elements

The following is a list of information elements for real time transfer between a wireless system and an emergency service system under the evolutionary paths as defined. Available data elements shall be displayed at the telecommunicator's position within 5 seconds of receiving voice connection to the 9-1-1 caller.

### A. Calling Party Number

- ANI
- Pseudo ANI (pANI)

### B. Subscriber Information

- Mobile Identification Number–Electronic Serial Number (MIN-ESN).
- International Mobile Station Identifier (IMSI)
- Billing number
- Subscriber name
- Subscriber billing address
- Subscriber home telephone number
- Subscriber priority indication
- Priority Access and Channel Assignment (PACA) level (A, B, or C)
- Preferred Language
- Personally provided medical information
- Home wireless service provider information

### C. Callback Number

- Temporary Local Directory Number (TLDN)
- Roamer port number
- Emergency service access port number
- Mobile Directory Number (MDN) (may be international)
- Indication of Non-Callable mobile station

### D. Terminal Information

- Electronic Serial Number (ESN)
- Mobile Station Type
  - a. Fixed



- b. Automobile
- c. Transportable
- d. Portable
- e. Aircraft
- f. Nautical
- Beacon Information (if applicable)

#### **E. Caller Geographic Location**

---

- Latitude
- Longitude
- Altitude
- Resolution
- Accuracy
- Geometric Description
- Confidence Level
- Motion Information
- Time Stamp
- Source of caller's geographic location
  - a. Mobile Station (MS)
  - b. Base Station Controller (BSC)
  - c. Mobile Switching Center (MSC)
  - d. Home Location Register (HLR)
  - e. Selective Router (SR)
- Type of technology used to determine the location

#### **F. Caller Street Location**

---

- Street address
- City
- Source
  - a. Mobile Station (MS)
  - b. Base Station Controller (BSC)
  - c. Mobile Switching Center (MSC)
  - d. Home Location Register (HLR) - for fixed mobile stations

## e. Selective Router (SR)

- Serving Wireless Service Provider Information
- Access Instructions

**G. PSAP Information**

---

- Primary PSAP
- Alternate PSAP(s)
- Up to six (6) Emergency Service Providers:
  - a. Directory Number
  - b. Type, such as:
    - Fire
    - Local Law Enforcement
    - Highway Law Enforcement
    - Medical
    - Poison Control
    - Suicide Prevention Hot Line

**H. Call Information**

---

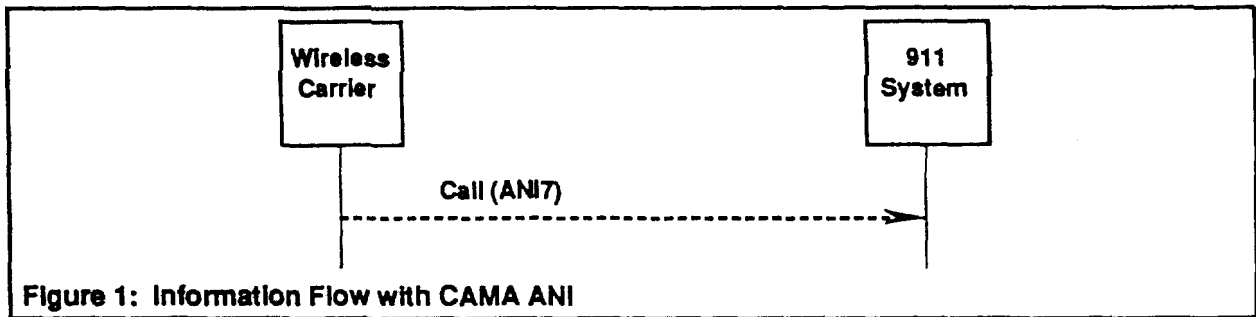
- Type of emergency information
- Additional location information
- Source of information

## 7. Information Flow Scenarios

These are generic information flow models; no single model will solve all of the requirements.

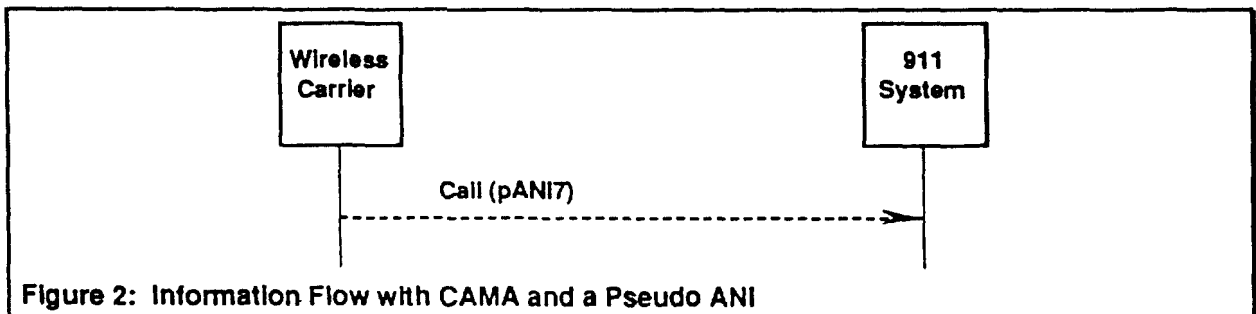
### 7.1 CAMA ANI

The emergency service call is made over a CAMA (Centralized Automated Message Accounting) trunk. Only 7 (or 8) digits of ANI (Automatic Number Identification) information are conveyed. The ANI may identify non-roaming callers only. It is not specified how roamers are to be identified over the interface.



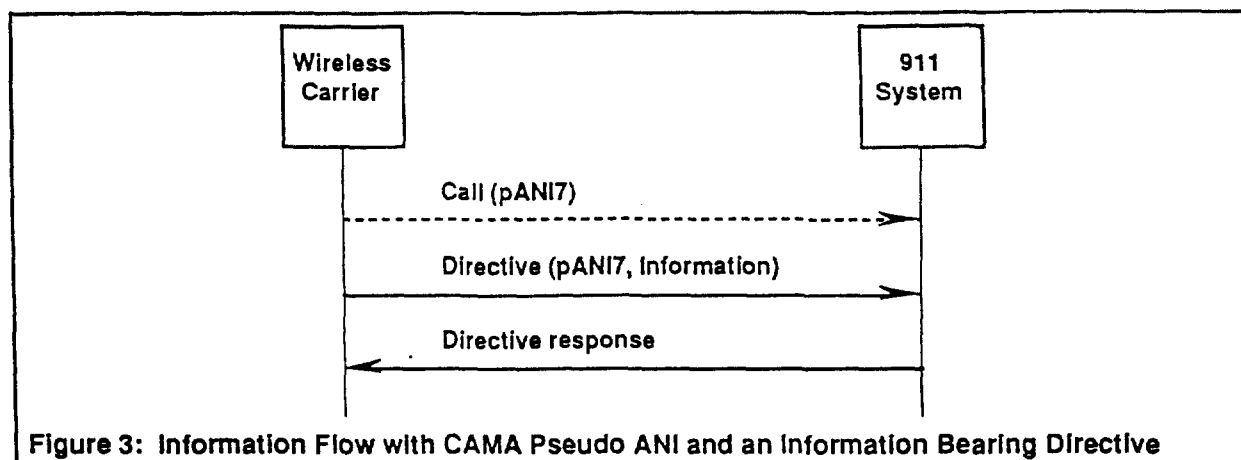
### 7.2 CAMA with Pseudo ANI

The emergency service call is made over a CAMA trunk. The 7 (or 8) digits of ANI information are used to convey a pseudo ANI (pANI). The pseudo ANI is usually used to identify the caller's serving cell (or sector) and indirectly the serving service provider.



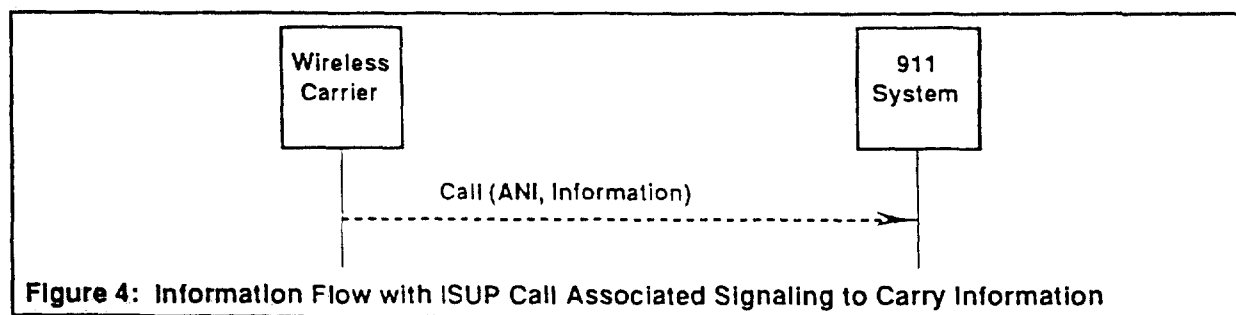
### 7.3 CAMA with Subscriber Specific Pseudo ANI

The emergency service call is made over a CAMA trunk. The 7 (or 8) digits of ANI information are used to convey a pseudo ANI. The pseudo ANI is usually used to identify the caller's serving cell (or sector) and the caller. The caller's identity is temporary, but it allows other information to be correlated. For instance, a directive could be used to convey specific information about the call (caller identification information, location information, etc.) This information may be correlated using the pseudo ANI. The information may be stored in an Automatic Location Information (ALI) database and be retrieved using normal E9-1-1 call procedures.



### 7.4 Call Setup with Additional Information (ISUP)

The emergency service call is made over an ISUP (Integrated Services Digital Network User Part) trunk modified to carry additional information about the call (caller identification information, location information, etc.). This method for information transfer is direct and does not require correlation of other messages. ISUP may not have sufficient bandwidth for the intended information flow and ISUP does not have procedures for additional messages to request and deliver location information.



## 7.5 Call Setup with Additional Information (TCAP)

The emergency service call is made over an ISUP trunk. The ANI information correlates the call to the call information conveyed via the SS7 Transaction Capability Application Part (TCAP). This method for information transfer is direct and does not require the retrieval of other information.

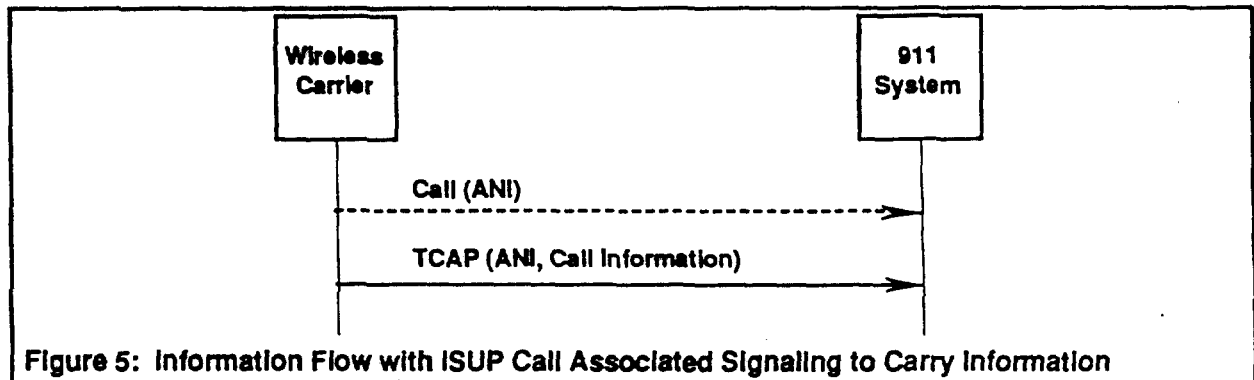


Figure 5: Information Flow with ISUP Call Associated Signaling to Carry Information

## 7.6 Call Setup with Additional Information

The emergency service call is made over a CAMA trunk. The 7 (or 8) digits of ANI information are used to convey a pseudo ANI. The pseudo ANI is usually used to identify the caller's serving cell (or sector) and the caller. The caller's identity is temporary, but it allows other information to be retrieved. For instance, more information may be requested that could be used to convey specific information about the call (caller identification information, location information, location updates, etc.).

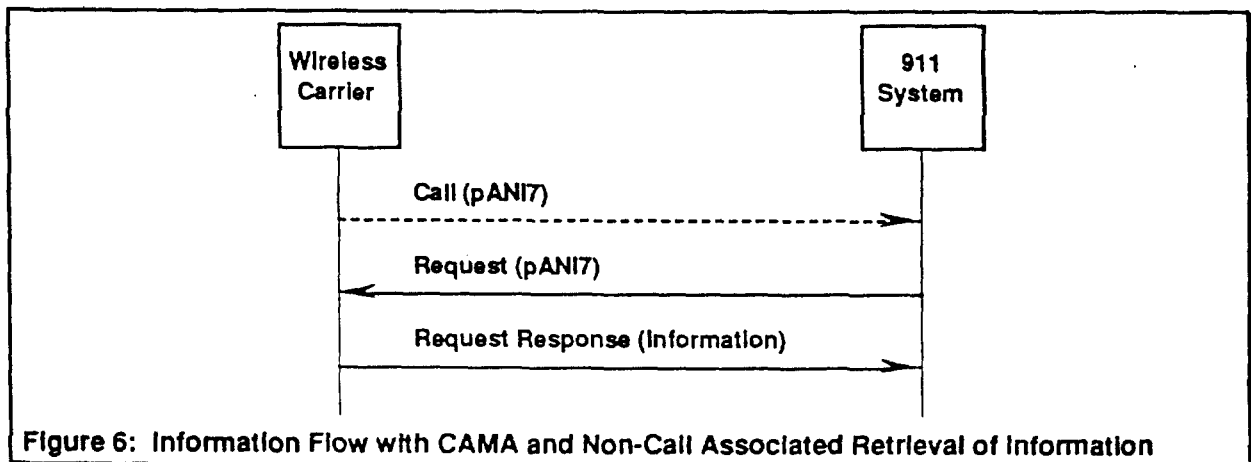


Figure 6: Information Flow with CAMA and Non-Call Associated Retrieval of Information

## 7.7 Call Setup with Additional Information

The emergency service call is made over an ISUP trunk. The ANI information identifies a caller. The caller's identity is temporary for some mobile subscribers, but it allows other information to be retrieved. For instance, more information may be requested that could be used to convey specific information about the call (caller identification information, location information, location updates, etc.).

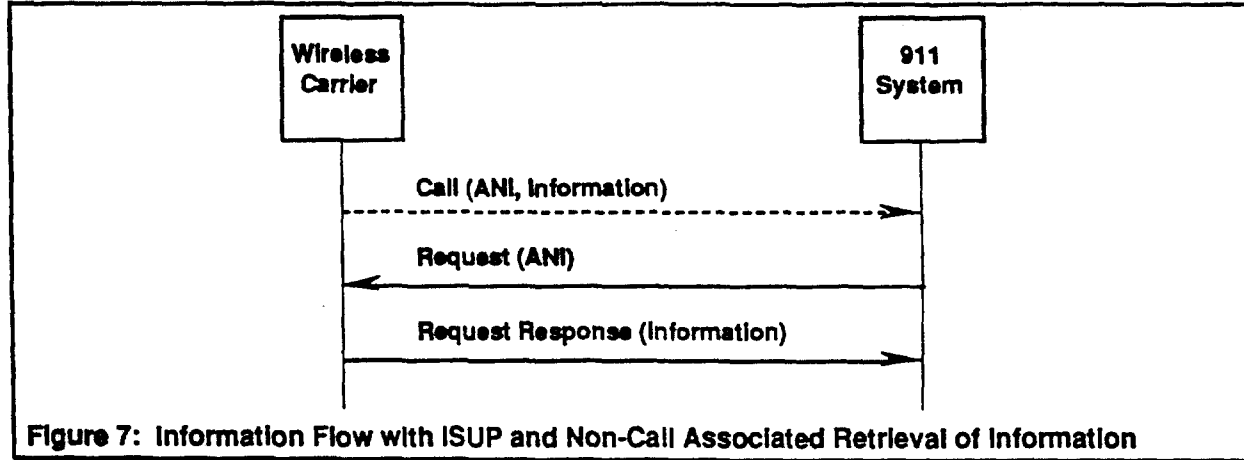


Figure 7: Information Flow with ISUP and Non-Call Associated Retrieval of Information

## 8. Information Element Sources

---

Note: reference points and network elements not germane to emergency service information element sources have been excluded for the sake of clarity. ANI refers to a full 10-digit (or greater) identification of the calling subscriber. ANI7 refers to a restricted 7- and 8-digit ANI.

The A, B, D, U<sub>m</sub>, D<sub>i</sub>, and A<sub>j</sub> are existing interfaces.

X<sub>a</sub>, X<sub>b</sub>, X<sub>c</sub>, X<sub>d</sub>, X<sub>f</sub>, X<sub>h</sub>, X<sub>i</sub>, X<sub>k</sub>, X<sub>m</sub> and X<sub>n</sub> are possible new interfaces.

